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NECROLOGY

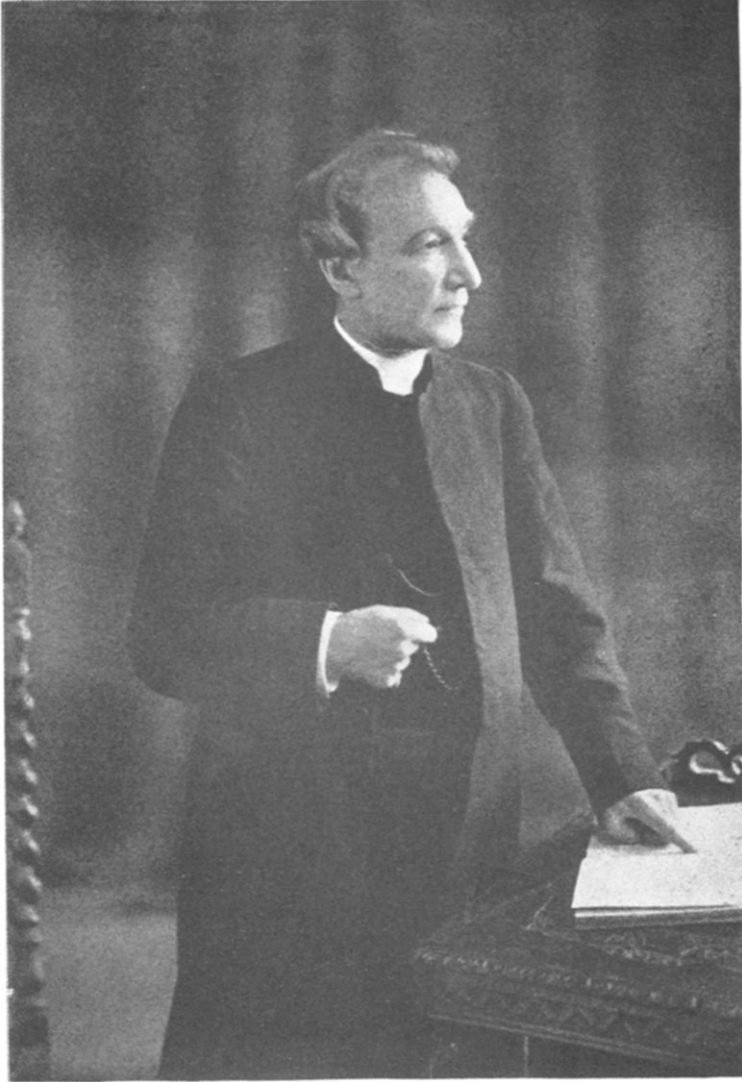
WILLIAM HENRY DALLINGER, 1842—1909

William Henry Dallinger,* Honorary member of this Society, was the son of an artist and engraver, and was born at Devonport on July 5, 1842. As a boy he had leanings towards natural science and at one time had thoughts of becoming a medical student; but the deep piety of his nature prevailed and, after a brief training at Richmond Theological College, he entered the Wesleyan ministry in 1861, and for the next twenty years "traveled in the circuits" of Faversham, Cardiff, Bristol, and Liverpool. At the last named city he remained for twelve years. During these years he not only kept up his interest in Natural Science, but taught himself German, Greek, and Hebrew.

In 1880 Dallinger was appointed Governor and Principal of Wesley College, Sheffield, where he did much to develop the modern side of the school. There he remained until 1888, when the Wesleyan Conference, in recognition of the great interest and value of his scientific work, allowed him to retain his status and privileges of a minister without pastoral charge, only retaining his position as a member of the "Legal Hundred." On leaving Sheffield, Mr. and Mrs. Dallinger—he married Emma, daughter of David Goldsmith, of Bury St. Edmunds, and had one son—were presented with some plate and a handsome sum of money, which he characteristically spent in microscopes and other scientific instruments.

During his tenure of the Principalship of Wesley College, Dallinger was four times elected President of the Royal Microscopical Society, in 1884-5-6 and 7. Although living 160 miles from London, he was constant in his attendance at meetings both of the Council and of the Society, and in order in no way to allow these meetings to interfere with his work at Sheffield he was in the habit of returning by the early newspaper train the morning after the Meeting. His devotion to the Society and the tact he showed in the Chair were warmly commented on by Dr. Glaisher, Prof.

*The American Microscopical Society is indebted to Mr. A. E. Shipley of Christ's College, Cambridge, for permission to reprint this memorial notice; and to the Royal Microscopical Society for permission to reprint the portrait accompanying.



WILLIAM HENRY DALLINGER

Jeffrey Bell, and Mr. Crisp on his retirement in 1888. So great was his interest in the Society that shortly after resigning the Presidency he allowed himself to be nominated Joint Secretary, and for some years he continued to labour whole-heartedly for its welfare. In 1890, 1891, and 1892 he was President of the Quekett Microscopical Club.

After leaving Sheffield, Dallinger devoted much of his time to lecturing. He was for many years senior Lecturer of the Gilchrist Educational Trust. He first lectured for the Trust in 1879 and continued without a break until the spring of 1909. During the thirty years he gave about 450 lectures in different towns in the country for the Gilchrist Trustees. The titles of some of his most popular lectures were as follows:

"An Hour with the Modern Microscope," "Carnivorous Plants," "Contrasts in Nature—the Infinitely Great and the Infinitely Small," "Evolution as Illustrated in the Minutest Forms of Life," "Spiders: Their Work and Their Wisdom," "Ants," "Wasps," "The Pond and its Minute Inhabitants." In 1887 he was chosen to deliver the seventeenth Fernley Lecture, the Lectureship being a Wesleyan foundation. The lectures are delivered at the annual Conference. Dallinger took as his subject "The Creator, and what we may know of the Method of Creation." As a lecturer Dallinger was very successful: he had a vivid descriptive style and a remarkable ability in illustrating both verbally and by drawings his subject matter. He spared no pains to make his matter attractive and even painted his own lantern slides; in this his remarkable artistic gifts were apparent.

Some of his more important scientific articles are mentioned below. The great service he did to students by editing and partly re-writing Carpenter's book on "The Microscope" is worthy of record.

Dallinger was elected a Fellow of the Royal Society in 1880, and received the degrees of LL.D. from Victoria University, Toronto, in 1884; D.Sc. from Dublin in 1892; and D.C.L. from Durham in 1896. A striking photograph of him is published in the 'Journal of the Royal Microscopical Society,' 1909, and is herewith reproduced.

The original contributions made to Science by Dr. Dallinger were almost entirely confined to the investigation of certain flagel-

lates. In conjunction with his friend, the late Dr. J. Drysdale, of Liverpool, he succeeded in working out the life-history of many of the minuter forms and of making considerable advances in our knowledge of the processes of decomposition of organic matter, and of the degree to which unicellular animals can survive great changes in the temperature of their environment. The dominant feature of the work of Dallinger and his colleague Dr. Drysdale was untiring patience and unwearied application combined with a profound knowledge and mastery over all the technique of the microscope. By using a binocular, one individual flagellate could pass from the vision of one observer to that of the other and thus on one occasion a motionless zygote was continuously watched for thirty-six hours until it burst into a cloud of swarm pores; on another occasion Dallinger watched the same protozoon for a continuous period of nine hours. By such persistent observation the life-histories of several of the flagellates hitherto most incompletely known were worked out. The papers in which the joint authors recorded the observations are characterised by a singular modesty and simplicity of language. The simple organisms investigated were not overwhelmed with long classical designations. *Dallingeria drysdalei* (S. Kent) was to them "the hooked monad," *Polytoma uvella* (Ehrb.) "the acorn monad," *Tetramitus rostratus* (Pertz) "the calycine monad," and so on.

Dallinger and Drysdale contributed important facts bearing on the theory of "abiogenesis." With great manipulative skill and under the most rigorous conditions they were able to show that though the temperature of boiling water is fatal to flagellates in an active state, the spores of these animals can resist a much higher temperature without suffering harm. For these minute spores can sustain a heat up to 268° F. in water, and even up to 300° F. or higher if in a dry state. The demonstration of these remarkable powers of resistance showed that organic solutions, which had been thought to be sterile because they had been boiled, often contained living spores which had survived the heat and were capable of starting fresh colonies of flagellates. In connection with this part of his scientific researches was the remarkable series of experiments by means of which he was able to habituate successive generations of *Dallingeria drysdalei* and other forms to gradually increasing higher temperatures. From a temperature of 60° F. at which these

flagellates normally live, he gradually raised the solution to that of 158° F. At this heat, which is at once fatal to the normal animals not habituated to high temperatures, the animals lived and multiplied, differing from the original stock chiefly in the marked vacuolation of the protoplasm. He felt that these experiments weighed against the position Weismann had taken up on the non-inheritance of acquired characters, and argument did not shake him. He was intensely preoccupied in his work and gave his contemporaries the impression of profound earnestness in all he undertook, combined with a little absence of business method. Before leaving this short record of Dallinger's contributions to the advancement of learning it is well to recall the honest and the truly scientific spirit which animated both his researches and his writings. This is admirably expressed in his own words:—"Let *truth* come from whence it may, and point never so grimly to where it may, he would be recreant to science who would for one moment hesitate to receive it. But no less false is it to the foundation principles of true science, to accept as true, what must constitute the roots of vast generalisations, except on evidence which no future scrutiny or analysis can shake."*

A. E. S.

*'Jour. of the Roy. Mic. Soc.,' vol. 3, pt. 1, p. 16 (1880).